WHAT IS CLAIMED IS:

1. A disk drive using a disk as a recording medium, comprising:

a spindle motor which rotates the disk;

a voltage determination unit which dynamically determines a first voltage for driving the spindle motor according to a rotational state of the spindle motor, the first voltage being a voltage required to maintain rotational speed of the spindle motor at the rated rotational speed;

a CPU which determines a second voltage value for driving the spindle motor by software processing in a software control mode;

a voltage generator which generates driving voltage for driving the spindle motor, the voltage generator generating the first voltage determined by the voltage determination unit as the driving voltage in a hardware control mode and generating the second voltage determined by the CPU as the driving voltage in the software control mode; and

a driver circuit which drives the spindle motor by the driving voltage generated with the voltage generator.

2. A disk drive according to claim 1, wherein the CPU sets the software control mode when the spindle motor is required to start and the CPU changes the software control mode to the hardware control mode when

the start of the spindle motor is completed.

3. A disk drive according to claim 2, wherein the CPU changes the hardware control mode to the software control mode in accordance with a decrease in the rotational speed of the spindle motor during a period of the hardware control mode.

4. A disk drive according to claim 3, wherein the CPU changes the hardware control mode to the software control mode when a ratio of a decrease in the rotational speed of the spindle motor to a target rotational speed exceeds a predetermined threshold.

5. A disk drive according to claim 3, wherein the CPU changes the hardware control mode to the software control mode when a rate of a decrease in the rotational speed of the spindle motor exceeds a predetermined threshold.

6. A disk drive according to claim 3, wherein the CPU changes the hardware control mode to the software control mode when a decrease in the rotational speed of the spindle motor exceeds a predetermined threshold.

7. A disk drive according to claim 2, wherein the CPU changes the hardware control mode to the software control mode when an impact exceeding a predetermined threshold is applied to the disk drive during a period of the hardware control mode.

8. A disk drive according to claim 1, further comprising a voltage detector which detects a terminal

voltage of the spindle motor; wherein the voltage determination unit determines the first voltage value according to a value of the terminal voltage detected with the voltage detector.

9. A disk drive according to claim 8, wherein the voltage determination unit includes an arithmetic unit which calculates the first voltage value from the value of the terminal voltage detected with the voltage detector.

10. A disk drive according to claim 9, wherein the arithmetic unit is an adder which adds the value of the terminal voltage detected with the voltage detector and a predetermined voltage margin, the adding result of the adder being used as the first voltage value.

11. A disk drive according to claim 8, wherein the voltage determination unit includes an arithmetic unit which calculates difference between the value of the driving voltage used for driving the spindle motor with the driver circuit and the value of the terminal voltage detected with the voltage detector, the first voltage value being determined according to the difference calculated with the arithmetic unit.

12. A disk drive according to claim 1, further comprising a multiplexer which selects one of a first data specifying the first voltage value determined by the voltage determination unit and a second data specifying the second voltage value determined by the

CPU, the multiplexer selecting the first data specifying the first voltage value in the hardware control mode and selecting the second data specifying the second voltage value in the software control mode; wherein the voltage generator generates the driving voltage of the value indicated by the data selected with the multiplexer.

13. A method for controlling driving voltage applied to a driver circuit driving a spindle motor in a disk drive using a disk as a recording medium, the spindle motor rotating the disk, the method comprising:

determining dynamically a first voltage for driving the spindle motor according to a rotational state of the spindle motor by hardware processing, the first voltage being a voltage required to maintain rotational speed of the spindle motor at the rated rotational speed;

determining a second voltage for driving the spindle motor by software processing in a software control mode;

generating the first voltage determined by the hardware processing as the driving voltage in a hardware control mode; and

generating the second voltage determined by the software processing as the driving voltage in the software control mode.

14. The method according to claim 13, further

comprising:

setting the software control mode when the spindle motor is required to start; and

changing the software control mode to the hardware control mode when the start of the spindle motor is completed.

15. The method according to claim 14, further comprising changing the hardware control mode to the software control mode in accordance with a decrease in the rotational speed of the spindle motor during a period of the hardware control mode.

16. The method according to claim 13, further comprising detecting a terminal voltage of the spindle motor; wherein the first voltage is determined according to the detected terminal voltage of the spindle motor.